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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,107	11/29/2001	Desmond R. Lim	MIT8926	3629

7590 06/19/2003

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EXAMINER
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FERGUSON, LAWRENCE D

ART UNIT	PAPER NUMBER
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1774

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DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

09/997,107

Applicant(s)

LIM ET AL.

Examiner

Lawrence D Ferguson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 and 29 is/are pending in the application.
- 4a) Of the above claim(s) 15-28 and 30-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

1. This action is in response to the amendment mailed March 26, 2003.

Acknowledgement is made of Applicant's election without traverse of Group I claims 1-14 and 29, with claim 15-28 and 30-44 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected invention. The election has therefore been made  
**FINAL**

### *Claim Rejections – 35 USC § 103(a)*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2 and 6-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scalora (U.S. 6,262,830).

Scalora discloses an optical device (column 2, lines 50-53) comprising a plurality of layers, whereby the layers alternate between low and high index of refraction (column 5, lines 1-10). The reference discloses the material is a conductor of electricity (column 7, lines 50-67) and subsequently heat. Scalora discloses band gaps and their widths (column 5, lines 1-59). The reference discloses the index difference between the index layers greater than 0.3 (column 1, line 56 through column 2 line 8). In claim 1, '...formed

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by creating alternating layers of said plurality of high index layers and said plurality of low index layers' is directed to a product by process claim limitation. In claim 9, '...form tunneling junctions between said plurality of high index layer and said low index layers' is deemed to be a product by process claim limitation along with '...fabricated by sputtering said alternating layers' in claim 11. The claim language, '...fabricated by bonding,' '...fabricated by utilizing smart cut technique,' and 'fabricated by utilizing polishing technique' of claims 11-14 are deemed to be product by process claim limitations. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966. In claims 7 and 8, '...ensure that the loss in said optical device will be due to scattering off carriers' and '...exhibit low absorption losses' constitutes a 'capable of' limitation and that such a recitation that a device is 'capable of' performing a function is not a positive limitation, but only requires the ability to so perform.

***Claim Rejections – 35 USC § 103(a)***

4. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scalora (U.S. 6,262,830) in view of Knapp et al (U.S. 6,077,569).

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Scalora is relied upon for claims 1-2 and 6-14. Scalora does not disclose Indium Tin Oxides, doped diamonds or silicon. Knapp teaches an optical device comprising alternating layers of high refractive index and low refractive index, where the refractive indices includes indium tin oxide, silicon and diamond materials (column 1, line 34 through column 2, line 9). Scalora and Knapp are analogous art because they are both from the field of optical devices. It would have been obvious to one of ordinary skill in the art to include indium tin oxide, silicon and diamond material in the high index layers of Scalora because Knapp teaches the material provides additional abrasion protection and barrier properties (column 4, lines 11-16).

***Claim Rejections – 35 USC § 103(a)***

5. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duck et al. (U.S. 5,615,289).

Duck discloses a Fabry Perot device comprising alternating high and low index regions (abstract and column 1, lines 48-60) including at least two reflectors (mirrors) comprising cavities comprising selective materials (column 1, lines 52-67). The claim language, '...allow electricity and heat to be conducted' constitutes a 'capable of' limitation and that such a recitation that a device is 'capable of' performing a function is not a positive limitation, but only requires the ability to so perform. Although Duck does not explicitly disclose mirrors, it is obvious to the average artisan that reflectors are analogous to mirrors.

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**Conclusion**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Ferguson whose telephone number is (703) 305-9978. The examiner can normally be reached on Monday through Friday 8:30 AM – 4:30PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on (703) 308-0449. Please allow the examiner twenty-four hours to return your call.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2351.



Lawrence D. Ferguson  
Examiner  
Art Unit 1774

CYNTHIA H. KELLY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

